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STORED-PRODUCT INSECT INVESTIGATIONS

E. A. Back, Senior Entomologist, in Charge

Perez Simmons has perfected a magazine exchange among the entomologists of the Bureau located on the Pacific Coast. The exchange makes available for those interested some 38 different publications.

On April 17 the manufacturers of cedar chests met in Pittsburgh and formed a national organization. A committee of five was appointed which held a preliminary meeting at the Raleigh Hotel, Washington, D. C., April 26, to consider the advisability of changing where necessary the construction of chests so that the cedar content of the chests offered the public will range from 70 to 100 per cent. It is interesting to note that a recent report of the Department of Commerce indicates that the American public is spending about $10,000,000 a year on cedar chests.

R. T. Cotton attended the St. Louis meetings of the American Chemical Society, April 17 and 18, and took part in the symposium on insecticides. He read a paper by Cotton and Roark, entitled "Ethylene Oxide as a Fumigant," and discussed another paper by the same authors, "Tests of Certain Aliphatic Compounds as Fumigants." On his return trip Dr. Cotton visited several candy-manufacturing plants in Chicago.

The April issue of The Furniture Manufacturer contains a brief article by Back and Cotton, entitled "Moth Proof Your Upholstery."

Much interest has been aroused by the fig-endosepsis campaign, which consisted in bringing all mammae caprifigs in the State of California to Fresno, and distributing to the growers disease-free Blastophaga wasps in test tubes. In this work there has been excellent cooperation between the California State Department of Agriculture, the University of California, County Horticultural Commissions, the California Dried Fruit Associatien, the California Peach and Fig Growers' Association, and individual fig growers. It is anticipated that the result of this campaign will be cleaner Calimyrna figs. It will be interesting to learn what effect such a campaign will have upon the economic importance of the dried-fruit beetle.

On March 12 A. O. Larson gave an illustrated talk at a meeting of the Denair, Calif., Farm Bureau. On April 4 similar talks were given before the high-school students in agriculture at both Denair and Ceres. On April 19 Mr. Larson addressed the Ceres Chamber of Commerce. These and other talks are part of the campaign for the production of weevil-free beans and cowpeas in the bean-growing area centering about Modesto, Calif.

BEE CULTURE INVESTIGATIONS

James I. Hambleton, Apiculturist, in Charge

E. L. Sechrist left Washington April 5 to spend several months in the Intermountain States, where a cooperative study dealing with the cost of honey production and systems of apiary management will be conducted by the Bureau of Agricultural Economics and the Bureau of Entomology. About 40 commercial apiaries in the States of Colorado, Wyoming, Utah, Montana, and Idaho will be used for obtaining data. R. S. Kifer, of the Bureau of Agricultural Economics, is expected to join Mr. Sechrist shortly to assist in the work. C. L. Corkins, State Entomologist, Laramie, Wyo., R. G. Richmond, Deputy Apiary Inspection, Fort Collins, Colo., D. H. Hillman, State Inspector of Apiaries, Salt Lake City, Utah, and O. A Sippel, State Apiarist, Bozeman, Mont., are giving very valuable assistance in this work.

Dr. J. W. Bulger has been transferred from the Bee Culture Laboratory to the office of Deciduous-Fruit Insect Investigations, with the rank of Associate Entomologist, where he will be engaged in compiling an insecticidal pharmacopoeia.

On April 30 Lieut. Gen. Phya Vijitavongs, Minister of Siam, visited the Bee Culture Laboratory in the interest of the development of bee culture in his native country.

Prof. Herbert Osborn, of the Department of Entomology and Zoology, Ohio State University, Columbus, visited the Laboratory April 25.

TAXONOMIC INVESTIGATIONS

S. A. Rohwer, Senior Entomologist, in Charge

The transport "Cambrai" bearing the C. F. Baker collection of insects arrived at New York on April 7, where it was met by R. A. Cushman, who had gone to New York to superintend the transfer of the collection. Through a change of plans, made on the advice of the Coordinator in New York, the shipment from that city was made by rail instead of by water. On April 10 the collection was transferred to a freight car, on the 12th it arrived in Washington, and the next day it was transferred to the Museum. On the 16th and 17th it was unpacked and distributed by orders to the various specialists in the Museum. The collection was found to have arrived in excellent condition, with a negligible amount of breakage, no trace of mold, and very little verdigris. The total of 1,417 boxes are distributed by orders as follows: Coleoptera 607, Hymenoptera 207, Homoptera 209, Hemiptera 115, Lepidoptera 124, Orthoptera 96, Diptera 41; and the remaining 19 are divided among the smaller orders. The number of boxes devoted to family units varies from a fraction to 122 boxes. Some of the larger families are housed in the following numbers of boxes:

Coleoptera		Hymenoptera	
Cerambycidae	122	Braconidae	56
Chrysomelidae	99	Ichneumonidae	26
Scarabaeidae	44	Psammocharidae	13
Curculionidae	65	Eumenidae	13
Anthribidae	32	Scoliidae	10
Tenebrionidae	24		
Elateridae	19		
Buprestidae	16		

Heteroptera		Diptera	
Reduvioidea	31	Asilidae	5
Pentatomoidea	19	Syrphidae	4
Coreoidea	18	Ortalidae	4
Neidoidea	14	Trypetidae	4

Lepidoptera		Homoptera	
Noctuidae	32	Fulgoroidea	78
Pyralidae	31	Jassoidea	64
Geometridae	17	Cicadoidea	32
Sphingidae	10	Cercopoidea	20
		Membracoidea	10

Orthoptera	
Tettigoniidae	25
Acrididae	24
Blattidae	14
Phasmidae	12
Gryllidae	12
Mantidae	9

In order to convey some idea of the size of this collection, an aggregate of about 250 feet of shelf room was required for its temporary storage.

Dr. E. A. Chapin left Washington on April 19 for a ten days' trip to Cincinnati and Chicago, for the purpose of studying types of beetles belonging to the family Cleridae. He stopped first at Cincinnati, where he worked with the collection of Mr. Charles Dury. Going on to Chicago, Dr. Chapin examined material in the collection of A. B. Wolcott, who is connected with the Field Museum of Natural History. He also spent an evening studying the collection of Dr. F. J. Psota. Dr. Chapin took with him considerable National Museum material for comparison and succeeded in naming a good part of it. He brought back from these collections considerable unworked material from the Philippines, with the privilege of working it up and retaining the types for the National Collection. This will mean about six Philippine species that are not represented in the Baker collection.

Miss Marjorie H. Ellis, of Iowa City, Iowa, has been appointed Senior Scientific Aid in the Division. She will assist Mr. Gahan in the work on chalcids, and will do some indexing of literature. Miss Ellis has a B. A. degree from the University of Iowa.

Dr. Grace H. Griswold, of Cornell University, was in Washington the first ten days of April, and on several occasions visited the Museum and consulted various specialists in the Division.

Dr. E. D. Ball, of Sanford, Fla., visited here on April 23 and worked with the Homoptera collection.

Dr. W. A. Riley, of the University of Minnesota, was a visitor to the Division of Insects on April 21 and 23, when he conferred with the various specialists.

Dr. M. T. Smulyan, of the Gipsy Moth Laboratory, arrived in Washington on April 13, and will spend a month studying chalcids of the family Perilampidae in the Museum collection. At the present moment Dr. Smulyan is working on a revision of the genus Perilampus in North America.

Professor Dayton Stoner, of the University of Iowa, and Mrs. Stoner, on their way to Syracuse, N. Y., stopped in Washington from April 20 to April 26, and while here called on various specialists in the Division.

Alan S. Nicolay, of Upper Montclair, N. J., spent April 28 looking over material in the Casey collection.

R. O. Malcomson, postgraduate student from the University of Illinois, spent his Easter vacation at the Museum working up his collection of Mallophaga from Illinois birds.

Dr. Herbert Osborn, Research Professor in Entomology, Ohio State University, recently called at the Museum and made some comparisons with types of Homoptera.

Dr. Carl J. Drake, of Iowa State College, visited the Division during his spring vacation to compare specimens in the Hemiptera collection and to consult with various specialists.

Dr. W. T. M. Forbes, of Cornell University, spent three weeks, beginning April 3, identifying material with the aid of the collections of Lepidoptera. He brought for use here about 1,000 species.

S. E. Cassino spent April 4 in the Museum, working with the Geometridae. Other visitors to the Lepidoptera Section on April 4 were Frank Johnson and Graham Fairchild.

Dr. Bernard Trouvelot, professor in the École Nationale d'Horticulture, Versailles, France, who is now a travelling fellow of the Rockefeller Foundation, made several visits to the Division in April. One of Dr. Trouvelot's problems while he is in this country is to find out whether it will be advisable to introduce into France the tachinid parasite of the potato beetle, as the beetle now occurs in that country. Dr. Aldrich has agreed to send him identified material as a basis for his work on the parasite.

H. S. Barber went to Boston April 1, and spent two days there comparing specimens of Coleoptera with types of Le Conte species in the Museum of Comparative Zoology.

GIPSY MOTH AND BROWN-TAIL MOTH INVESTIGATIONS

A. F. Burgess, Senior Entomologist, in Charge

K. A. Salman, of the Entomological Department of the Massachusetts Agricultural College, visited the office and laboratory at Melrose Highlands on March 16.

A. F. Burgess spent a part of the week of March 19 in Washington.

F. P. Washburn, Commissioner of Agriculture of Maine, called at the office on March 22 to discuss the gipsy moth work in that State.

At Melrose Highlands on March 27 a conference pertaining to the gipsy moth work in the State of New York was held with H. L. McIntyre, of the New York State Conservation Commission.

In April W. B. Cartwright, of the Division of Cereal and Forage Insects, in charge of the field laboratory at Sacramento, Calif., and A. B. Baird, Entomologist, in charge of parasite work, Chatham, Ont., visited the gipsy moth laboratory.

S. M. Dohanian, Associate Entomologist, who has been connected with the gipsy moth and brown-tail moth parasite work for several years, was transferred to the European Corn Borer activity at Arlington, Mass., on April 16. At times Mr. Dohanian has suffered considerably because of the more or less constant exposure to the hairs of the gipsy moth and the brown-tail moth, and it is hoped that the new work will be less harmful to his health.

The gipsy moth parasite laboratory at Budapest, Hungary, has been moved to Kapy utca 21, Budapest 2.

TRUCK-CROP INSECT INVESTIGATIONS

J. E. Graf, Senior Entomologist, in Charge

D. E. Fink attended the meetings of the American Chemical Society at St. Louis, Mo., April 16 to 18, where he presented a paper on insecticides and discussed with entomologists present some laboratory apparatus and technique relative to the toxicity, to insects, of various materials. He returned via Washington, and there discussed plans for the future conduct of his work.

After spending some time studying the ecological methods used by Walter Carter at Twin Falls, Idaho, Alfred Weed returned to Madison, Wis., April 12.

About the middle of April C. I. Bliss, of the field laboratory at New Orleans, La., paid the field office at Biloxi a short visit.

S. E. Crumb left Clarksville, Tenn., April 25 for Quincy, Fla., to assist S. F. Chamberlin in fumigation experiments for the control of the cigarette beetle.

Rodney Cecil has resumed investigations on the Mexican bean beetle, at Geneva, N. Y.

J. E. Graf returned to Washington on April 27 from a three weeks' visit to the southern truck-crop insect laboratories.

On April 30 N. F. Howard, Columbus, Ohio, visited Washington and discussed plans for the coming season's work.

C. P. Clausen, en route to Japan for further studies of parasites of the Japanese beetle, spent April 4 at the Alhambra, Calif., laboratory.

C. F. Henderson, en route to Mexico, to search for parasites of the sugar-beet leafhopper, visited Alhambra, Calif., on April 21.

J. C. Elmore has established permanent headquarters at the Garden Grove, Calif., substation of the Alhambra laboratory, to continue studies on the pepper weevil.

On April 21 R. E. Campbell, Alhambra, Calif., met at San Diego with the horticultural commissioners of the eight southern counties of California, to arrange for a standardized method of scouting for the pepper weevil, which will be used by the horticultural inspectors in the several counties affected by this insect.

Temporary appointments have been given to Paul E. Kirker, Jr., Toppenish, Wash., C. W. Getzendaner, Alhambra, Calif., and B. J. Landis, Geneva, N. Y.

CEREAL AND FORAGE INSECT INVESTIGATIONS

W. H. Larrimer, Senior Entomologist, in Charge

The North-Central States Entomologists, in conference at Madison, Wis., in March, 1927, accepted the invitation of Dr. L. Haseman and A. F. Satterthwait to meet in Missouri in March, 1928, chose St. Louis as the place of meeting, and appointed Mr. Satterthwait to serve as chairman of the committee on arrangements. The conference was held in Rebstock Hall, Washington University, March 1 to 3, and was favored by having in attendance more working entomologists than have been at any previous conference of entomologists of the North-Central States. The Bureaus of Entomology and Chemistry, and the States of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin were represented. At the noon recess on March 1, all who were in attendance at that time motored to the U. S. Entomological Laboratory, 527 Ivanhoe Place, Webster Groves, Mo., where the investigation of corn billbugs is the special project.

Recent visitors at the Monroe, Mich., field laboratory include Dr. and Mrs. R. D. Glasgow, Albany, N. Y., and G. L. Giasson, G. W. Wishart, C. S. Thompson, and L. J. Briand, from the Dominion Entomological Laboratory, Chatham, Ontario.

J. R. Horton, in charge of the field laboratory at Wichita, Kans., spent a few days in the latter part of April in northeastern New Mexico, on business relating to studies of the southwestern corn borer and other pests.

Dr. F. W. Poos, of the Virginia Truck Crop Experiment Station, at Norfork, has accepted an appointment in this branch effective April 16, 1928. He will be located at Arlington Farm, Va., and will conduct investigations on the possible relation of alfalfa and clover "yellows" to leafhopper injury. Dr. Poos was formerly connected with this branch of the Bureau, and served at Charlottesville, Va., and Sandusky, Ohio.

JAPANESE BEETLE INVESTIGATIONS

Loren B. Smith, Senior Entomologist, in Charge

Among the visitors at the Japanese beetle laboratory in March were Arthur Gibson, Dominion Entomologist, and several members of the Food, Drug and Insecticide Administration, including Dr. C. C. McDonnell and Dr. E. Wallace, of Washington, D. C., D. P. Perry, Haddon Heights, N. J., and F. D. Bailey, Corvallis, Oreg. On March 2 and 3 Mr. Alejandro de Mesa, of the Bureau of Forestry, Manila, P. I., spent two days studying the work of the laboratory.

C. P. Clausen, in charge of the foreign parasite work for the Japanese beetle project, left in March for Japan. He expects to be absent from the United States four years.

INSECTS AFFECTING MAN AND ANIMALS

F. C. Bishopp, Senior Entomologist, in Charge

On April 16 F. C. Bishopp and O. G. Babcock appeared as witnesses in a case at Topeka, Kans., which was successfully prosecuted by the Food, Drug and Insecticide Administration against a manufacturer of a lime-sulphur mixture advocated for internal administration against external parasites of poultry.

In the latter half of April F. C. Bishopp visited various points in Kansas, Iowa, Minnesota, North Dakota, South Dakota, and Nebraska, particularly in connection with a study of the present status of the cattle grubs in the Red River Valley of the North, and adjacent regions. After concluding this work he visited the laboratories at Dallas, Tex., and Tallulah, La.

In the last week of April G. H. Bradley and T. E. McNeel, of the Mound, La., Laboratory, made a brief survey of the region around Charleston, Miss., where a severe outbreak of buffalo gnats occurred. About 100 head of horses and mules were found to have been killed by the gnats in this vicinity.

At the urgent request of farmers and ranchmen in the Coachella Valley, Calif., D. C. Parman spent the greater part of April studying the gnats (Hippelates) in this valley and in the Imperial Valley. These gnats have assumed major importance because of the annoyance they cause man, and almost certainly serve as important carriers of various eye diseases, including trachoma. Since Dr. Herms and Prof. Woodworth have been studying the breeding habits and other phases of the problem, Mr. Parman devoted his attention entirely to preliminary observations on the chemotropic responses of the insects and the development of a trap for the purpose of catching them. A trap was devised which caught millions of the gnats and attracted much attention. In connection with this trip, Mr. Parman studied the screw-worm situation in various points in the western part of Texas and in New Mexico and Arizona.

On April 20 J. L. Webb visited the Marine Barracks at Quantico, Va., to make a preliminary survey on the situation there regarding house flies. Some cooperative control work against them is planned, to be carried out during the present season.

FOREST INSECT INVESTIGATIONS

F. C. Craighead, Senior Entomologist, in Charge

Dr. F. C. Craighead spent the last week in April at Asheville, N. C., with R. A. St. George and J. A. Beal, reviewing plans for the summer's work in the region about Asheville. The chief activities there for the coming summer will be a continuation of studies on the southern pine beetle and the locust borer.

J. M. Miller reports that a cooperative project has been arranged with the California Forest Experiment Station for a series of studies on the relation of the vigor of the pine trees to the nature of the resins and terpenes secreted by them, and the degree of attractiveness of the latter for the western pine beetle. N. C. Tihomiroff, a chemist specializing on resins and terpenes, has been assigned to the California Forest Experiment Station and will cooperate in this study with H. L. Person, of this Bureau.

Plans have just been completed for a cooperative study of logs in the process of becoming lumber, conducted by the Forest Products Laboratory of the Forest Service, the Bureau of Plant Industry, the Bureau of Entomology, and local timber operators in the Appalachian Mountains. The object of this study will be to follow the logs from the time they are felled until the lumber is finally graded, and determine the amount of defect and cull caused by various insects and diseases. The work will be begun about June 1 and continue through August. R. A. St George will be detailed to this project during the greater part of the summer.

William Middleton was in Philadelphia April 6, 7, and 8, reviewing the control work on the boxwood leaf miner.

COTTON-INSECT INVESTIGATIONS

B. R. Coad, Entomologist, in Charge

G. F. Moznette, in charge of pecan insect investigations, and J. B. Demaree, conducting pecan-disease investigations in the Bureau of Plant Industry, spent several days in the middle of April at Tallulah assisting in preliminary tests of distribution of pecan insecticides and fungicides from airplanes. Plans have been perfected by which the Bureau cotton-dusting planes will make a series of experimental applications on pecan trees near Albany, Ga., during the coming summer, in cooperation with these gentlemen.

On April 30 Elmer Johnson and R. L. Mitchell left Tallulah for Albany, Ga., by plane, to arrange suitable landing fields and other facilities for this work at that place.

F. C. Bishopp spent April 30 at Tallulah in conference with Mr. Coad and others.

F. F. Bibby and W. L. Owen, of the Texas State Experiment Station, have reported for duty at the Cooperative Pink Bollworm Laboratory at Presidio, Tex.

LIBRARY

Mabel Colcord, Librarian

NEW BOOKS

Appel, Otto.
The diseases of sugar beet. Eng. ed. Ed. by R. N. Dowling, tr. by C. Leslie Wocd. 22 p., col. pl. London, Ernest Benn, ltd., 1927.

Barth, J. M.
De culice dissertatio. [62] p., fold. pl. Ratisbonae, Sumtibus Joh. Leopoldi Montag, 1737.

Blanchard, E. E.
Principales insectos y enfermedades que perjudican el cultivo de la yerba mate. 42 p., illus., 4 col. pl. (Argentine Republic Min. Agr. Seccion propaganda y informes. Nr. 735.)

Bolles, C. B.
Enemies and pests of dahlias. 42 p., illus. Media, Pa., 1926.

Bouché, P. F.
Naturgeschichte der schädlichen und nützlichen Zarten-Insekten und die bewährtesten Mittel zur Vertilgung der ersteren. 176 p. Berlin, Nicolai, 1833.

California, University of.
Publications in Entomology. v. 4, No. 9 and No. 11. Berkeley, Univ. of Calif. Press, 1928. 9. Smith, H. S., and Compere, Harold. A preliminary report on the insect parasites of the black scale Saissetia oleae (Bernard), p. 231-334, illus. 11. Hassan, A. S. The biology of the Eriophyidae, with special reference to Eriophyes tristatus (Nalepa), p. 341-394, illus., pl.

Cornu, Maxime.
Études sur le Phylloxera vastatrix. 357 p., 24 pl. Paris, 1879. (Mem. presentés par divers savants à l'Acad. des Sciences de l'Inst. Nat. France. 5. 26, No. 1.)

Costa Lima, A. M. da.
Segundo catalogo systematico dos insectos que vivem nas plantas do Brasil e ensaio de bibliographia entomologica brasileira. Archivos da Escola Superior de Agricultura e Medicina Veterinaria, Rio de Janeiro, v. 8, Nos. 1-2, Dec. 1927, p. 69-301.

Fauchère, A.
Le café. Production, préparation, commerce. Ed. 2. 171 p. Paris, Société d'Editions Geographiques, Maritimes et Coloniales, 1927. (Ennemis du café, p. 117-135.)

Floericke, K. E.
Spinnen und Spinnenlaben. 8 aufl. 77 p., illus. Stuttgart, Kosmos, 1919. (Kosmos Gesellschaft der Naturfreunde, Stuttgart. Die ordentlichen Veröffentlichungen, 1919, 3 bd.)

Hawaiian Pineapple Canners' Association.
Bulletins 7 and 9. Honolulu, 1926. 7. Illingworth, J. F. A study of ants in their relation to the growth of pineapples in Hawaii. 16 p. 9. Illingworth, J. F. Pineapple insects and some related pests. 64 p.

Hawaiian Sugar Planters' Association Experiment Station. Division of Entomology. Bulletin 19-20. 1928. 19. Williams, F. X. Studies in tropical wasps. 179 p., illus. 20. Van Zwaluwenburg, R. H. The interrelationships of insects and round-worms. 68 p.

Holmquist, A. M.
Notes on the life history and habits of the mound-building ant, Formica ulkei Emery. Ecology, v. 9, No. 1, p. 70-87, illus., pl. VI-VII, Jan., 1928.

Huard, M. A.
Manuel théorique et pratique d'entomologie. 164 p., illus. Quebec, 1927.

Jarvis, Edmund.
Notes on insects damaging sugar cane in Queensland. Ed. 2, rev. 94 p., illus. Brisbane, James Cumming, government printer, 1927. (Queensland Bur. Sugar Experiment Stations. Div. Ent. Bul. 3, rev.)

Lloyd, J. W.
Musk melon production. 126 p., pl. New York, Orange Judd Pub. Co., Inc., 1928. (Protection from enemies, p. 63-76.)

Loew, C. A.
Naturgeschichte aller der Landwirtschaft schädlichen Insecten mit Ausnahme der Forstinsekten. 307 p. Mannheim, Verlag von Friedrich Götz, 1846.

Marshall, J. F.
Principles and practices of mosquito control. 39 p., pl. Hayling Island, Hampshire, 1927.

Meyrick, Edward.
A revised handbook of British Lepidoptera. 914 p. London, Watkins & Doncaster, 1927.

Mohr, J. C. van der Meer.
. . . Proeven met arseen-preparaten ter bestrijding van de rupsenplaag in de tabak genomen door het Deli Proefstation in de jahren 1926 en 1927. (With summary in English.) 34 p., illus., pl. Medan, Typ. Varekamp & Co., 1928. (Mededeelingen van het Deli Proefstration te Medan, Sumatra, ser. 2, No. 51.)

Nordlinger, Hermann.
Die kleinen Feinde der Landwirtschaft und der gegen sie anwendbaren Schutzmittel . . . xxiv, 636 p., illus. Stuttgart & Augsburg, J. G. Cotta, 1855.

Readio, P. A.
Studies on the biology of the Reduviidae of America north of Mexico. 291 p. Lawrence, Kans., Dec. 1. 1927. (Kans. Univ. Bul. v. 28, No. 18. (Science Bul. v. 17, pt. 1.) Bibliography, p. 236-241.)

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Robertson, Charles.
Florida flowers and insects. Trans. Sci. Saint Louis, v. 25, No. 8, p. 277-324, Sept. 1927.

Shope, R. E.
Bacteriophage isolated from the common house fly (Musca domestica). Jour. Expt. Med. v. 45, No. 6, p. 1037-1044, June 1, 1927.

Stellwaag, Fritz.
Die Weinbau Insekten der Kulturländer, Lehr- und Handbuch . . .

Tukey, H. B.
884 p. Berlin, Parey, 1928. ("Schriften" at ends of sections.)
The pear and its culture. Designed for both the amateur and the commercial grower. 125 p., illus. New York, Orange Judd Pub. Company, Inc., 1928. (Farm and Garden library.) (Common diseases and insects and their control, p. 65-78.)

Vanino, L., and Seitter, E.
Der Formaldehyd. 2. Aufl. von Arthur Menzel. 330 p., illus. Wien u Leipzig, U. Hartleben's Verlag, 1927.

Wytsman, P.
Genera insectorum, fasc. 185-189. Terveuren (Belgique), 1926-1927. 185. Melander, A. L. Diptera. Fam. Empididae. 434 p., 8 pl. 1927. 186. Pierre, Claude. Diptera. Fam. Tipulidae, Subfam. Tipulinae. 68 p. 5 pl. 1926. 187. Alexander, C. P. Diptera. Fam. Tipulidae, Subfam. Cylindrotominae. 16 p., 2 pl. 1927. 188. Alexander, C. P. Diptera. Fam. Ptychopteridae. 12 p., pl. 1927. 189. Alexander, C. P. Diptera. Fam. Tanyderidae. 11 p., 1 pl. 1927.